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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,946	02/27/2004	Tinghong Tao	SP04-020	6701
22928	7590	01/05/2006	EXAMINER	
CORNING INCORPORATED			CHOI, LING SIU	
SP-TI-3-1				
CORNING, NY 14831			ART UNIT	PAPER NUMBER
			1713	
DATE MAILED: 01/05/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/788,946

Applicant(s)

TAO ET AL.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 02/27/2004.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This Office Action is in response to the Response to the Election/Restriction filed October 14, 2005. Claims 1-8 of Group I have been elected for further prosecution.

#### ***Claim Objections***

2. Claims 2-3 are objected to because of the following informalities: (a) claims 2-3, lines 1-2, "the cross-linkable hydrocarbon polymer" is suggested to be changed to --the cross-linkable, thermally pyrolyzable hydrocarbon polymer--; (b) claim 2, line 3, "amine-functional ionenes, polyvinyl alcohols, polyacrylic acids, and polyacrylic amines" is suggested to be changed to --amine-functional **ionene polymer**, polyvinyl **alcohol**, polyacrylic **acid**, and polyacrylic **amine**--; and (c) claim 3, line 2, "amine functional ionene polymer" is suggested to be changed to --amine-functional ionene polymer--.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country

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or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Golino et al. (US 4,532,228).

A method to provide a barrier coating on a porous ceramic article, comprising the steps:		
A	applying a polymer solution or dispersion	a liquid vehicle
		a cross-link promoter
		a thermally cross-linkable and pyrolyzable hydrocarbon polymer
	to the porous ceramic article	
B	heating the ceramic article to a temperature sufficient to substantially remove the vehicle from the applied solution or dispersion and to effect cross-linking of the hydrocarbon polymer	

(summary of claim 1)

A method to apply a catalyst or catalyst washcoat to a ceramic catalyst support, comprising the steps of		
A	applying a polymer solution or dispersion	a liquid vehicle
		a cross-link promoter
		a thermally cross-linkable and pyrolyzable hydrocarbon polymer
	to the catalyst support	
B	heating the ceramic article to a temperature sufficient to substantially remove the vehicle from the applied solution or dispersion and to effect <b>cross-linking of the hydrocarbon polymer</b>	
C	applying an aqueous washcoating or catalyst coating to the polymer-coated support and drying the coating or washcoating to provide a catalyst-coated or washcoated support	
D	heating the catalyst-coated or washcoated support to a temperature at least sufficient to remove the <b>cross-linked polymer coating</b>	

(summary of claim 6)

Golino et al. disclose a method to produce a catalyst-coated ceramic honeycomb structure, comprising (a) **infiltrating** a honeycomb structure with a **fugitive material** comprising a liquid organic compound which can be irreversibly hardened through a chemical or thermal **reaction** to inhibit the entry of a subsequently-applied washcoat into the microcracks of the honeycomb structure; (b) **solidifying** a liquid organic compound which can be irreversibly hardened through a chemical or **thermal reaction** in the microcracks; (c) **applying** a washcoat in the form of an aqueous slurry to the honeycomb structure; (d) **heating** the coated honeycomb structure in an oxidizing

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atmosphere to a temperature to bind the particles of the washcoat together and to **burn out the fugitive material from the microcracks** (col. 3, lines 26-68; col. 4, lines 1-33; claim 1). Thus, the present claims are anticipated by the disclosure of Golino et al.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Blum et al. (US 2002/0011439 A1).

Blum et al. disclose a method to form a ceramic filter, comprising (a) forming a slurry containing a zirconia-based ceramic precursor and preceramic polymer capable of being cured and a solvent; (b) **depositing** the slurry on a porous substrate to form a layer; (c) **curing** the zirconia-based ceramic precursor and preceramic polymer to form a nonfusible binder; and (d) **heating** the deposited slurry to form a porous layer on the substrate resulting in a ceramic filter (claim 1). Thus, the present claim is anticipated by the disclosure of Blum et al.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krug (US

5,460,854) in view of Golino et al. ( US 4,532,228).

Krug discloses a method to strengthen a fired porous ceramic core by impregnating the core with an aqueous solution of a water-soluble resin and drying the impregnated core to remove water, wherein the water -soluble resin is **poly(acrylic acid)**, poly(acrylamide), or **poly(vinyl alcohol)** (col. 2, lines 44-53; claim 1).

The difference between the present claim and the disclosure of Krug is the requirement of a cross-link promoter to be used in the present claim.

Golino et al. disclose a method to produce a catalyst-coated ceramic honeycomb structure, comprising (a) infiltrating a honeycomb structure with a fugitive material comprising a liquid organic compound which can be irreversibly hardened through a chemical or thermal reaction **to inhibit the entry of a subsequently-applied washcoat into the microcracks of the honeycomb structure**; (b) solidifying a liquid organic compound which can be irreversibly hardened through a chemical or thermal reaction in the microcracks (col. 3, lines 26-68; col. 4, lines 1-33; claim 1). In light of such advantage, it would have been obvious to one of ordinary skill in the art to use a cross-link promoter in the disclosure of Krug and thereby obtain the present invention.

8. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krug (US 5,460,854) in view of Golino et al. ( US 4,532,228) as applied to claim 2 above, and further in view of Buckman et al. (US 3,784,649) and Dreisbach et al. (US 4,765,867).

The disclosure of Krug (US 5,460,854) in view of Golino et al. ( US 4,532,228) is adequately set forth in paragraph 7 and is incorporated herein by reference.

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The difference between the present claim and the disclosure of Krug in view of Golino et al. is the requirement of an amine functional ionene or a combination of the amine functional ionene /specific crosslink promoter to be used in the present claims.

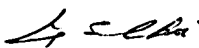
Buchman et al. disclose an an equivalency and exchangeability of polyacrylamide and ionene of polyacrylamide and ionene (col. 1, lines 31-52). And Dreisbach et al. disclose an equivalency and exchangeability of amine-functional ionene and ionene (col. 3, lines 27-57). Thus, the use of polyacrylamide is equivalent to and exchangeable with the use of amine-functional ionene in the disclosure of Krug. Furthermore, Buchman et al. disclose that epichlorohydrin can be used as a coupling agent. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace polyacrylamide with amine-functional ionene in the disclosure of Krug and thereby obtain the present invention.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

December 20, 2005

  
**LING-SUI CHOI**  
**PRIMARY EXAMINER**